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AUTHOR	Hinson, Janice; Daniel, Cathy
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ABSTRACT

As Internet usage increases nationally, it becomes more apparent that the Digital Divide (the gap between those who have information access and those who do not) is related to demographics. Although the number of low income and ethnic households that have Internet access is increasing, the Digital Divide is expected to widen because access continues to be tied to income. WISH (WorldGate Internet School to Home) gives students, parents and teachers Internet access through a television set and a cable set-top converter. No computer, modem, or telephone line is needed. In this way, WISH TV is unique because it allows users to access the Internet through their television sets and as a result, extends Internet availability to virtually all children in their homes. This is especially important for students whose socio-economic status inhibits Internet access through any other means. This article focuses on the effects of WISH TV on fourth grade students' behavior, attitudes, and motivation in the community of Belle Rose, Louisiana. Data were gathered through guided interviews with 15 students, their parents, the four fourth grade teachers, and the principal. Interview questions focused on: how teachers are integrating WISH TV into their teaching practices; how students and parents are using WISH TV at home; and what changes teachers, parents, and students have noted since the program began. (MES)

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By: Janice Hinson & Cathy Daniel

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Connecting Across Many Divides: Digital, Racial, and Socio-Economic

Janice Hinson
Cathy Daniel
Louisiana State University
jhinson@lsu.edu

Introduction

As Internet usage increases nationally, it becomes more apparent that the Digital Divide—the gap between those who have information access and those who do not—is related to demographics. The U.S. Department of Commerce reported in its "Falling through the Net" series of studies that only 23.5% of African-American households have Internet access at home as compared with whites (46.1%) and Asian-Americans (56.8). Although the number of low income and ethnic households that have Internet access is increasing, the Digital Divide is expected to widen because access continues to be tied to income. The U.S. Internet Council and the International Technology and Trade Associates (2000) estimates that fewer than 50% of households with incomes below $15,000 per year (19% of Americans) will have Internet access by 2005. Consequently, many poor inner city and rural children will be excluded from the benefits of Internet access at home and continue to fall behind in the emerging knowledge economy (The Web-based Education Commission, The Power of the Internet for Learning: Moving from Promise to Practice).

The fundamental barriers to Internet access are lack of a computer and peripheral technology (a modem, telephone line and Internet Service Provider). However, WorldGate Communications, Inc., has developed a technology to remove these barriers. The innovation is called WISH TV℠. WISH, which stands for WorldGate Internet School to Home, gives students, parents and teachers Internet access through a television set and a cable set-top converter. No computer, modem or telephone line is needed. In this way, WISHTV is unique because it allows users to access the Internet through their television sets and as a result, extends Internet availability to virtually all children in their homes. This is especially important for students whose socio-economic status inhibits Internet access through any other means.

WorldGate Communications, Charter Communications, and Motorola are sponsoring this initiative. The service includes full Internet access and e-mail for students, their parents, and their teachers. In December 2000, seven schools in four districts in Louisiana, Illinois and Ohio implemented WISH TV as an educational initiative to provide 4th grade students in poor communities with Internet access at home and in school. Students and their families are receiving the service at no charge for one academic year.

This article focuses on the implementation of WISH TV in the community of Belle Rose, Louisiana. Belle Rose is located in Assumption Parish (county). Residents in Assumption Parish are poor—26% live below the poverty level as compared with 15.7% nationally (1998-1999 District Composite Louisiana Department of Education, February 2000).

Forty-three percent of adults have less than a high school education. Thirty-two percent of the residents are Black, 67.1 are White (1990 U.S. Census). Although some of residents in this community live in poverty and are undereducated, they, like most parents, want their children have equal access to educational opportunities.

Project Design

Initial Steps. In early 1999, U.S. Congressman Billy Tauzin (R-LA 3rd) noted that only 18% of the households in Louisiana had Internet access. Since then, the percentage has increased to 30.2%; however, only Mississippi (26.3%) and Arkansas (26.5%) rank lower nationally (National Telecommunications and Information Administration, *Falling Through the Net*). Congressman Tauzin asked WorldGate Communications to pilot WISH TV in his congressional district. A Task Force consisting of local ministers, teachers, school administrators and university professors was formed to guide all aspects of implementation. One of the biggest concerns focused on "acceptable use" by the students and their family members. Concerns ranged from the possibility that a child might run up a big bill on his mother's credit card, or a relative would use WISH TV to access inappropriate Web sites. To overcome these obstacles, parents were asked to attend an orientation meeting and sign an Acceptable Use Policy pertaining specifically to this project. Also, WorldGate Communications implemented a filter to block inappropriate Web sites. As a sign of support, the ministers addressed the importance of this innovation with their congregations, and WISH TV was installed in the community rooms at their churches.

Project Objectives. The project's objectives are to:

- Assist teachers in developing Internet activities that incorporate state standards
- Increase student achievement in language arts, math, science, and social studies
- Increase technology proficiency levels of students
- Increase completion of homework through Internet-based assignments
- Strengthen communication and cooperation between home and school via the Internet
- Increase parental awareness of the benefits of Internet usage for themselves and their children

The service has been installed in classrooms and homes of the 4th grade students and their teachers. The Louisiana Task Force chose to implement WISH TV in Grade 4 because these students take the Louisiana Educational Assessment of Progress (LEAP 21) high stakes test. The LEAP Test is aligned with content standards, which by law must be as rigorous as the national assessment of educational progress (NAEP). Fourth grade students, who do not pass the LEAP Test either during the regular school year or in summer remedial programs, cannot be promoted to the fifth grade. Consequently, the Task Force targeted Grade 4 to provide students with increased opportunities to strengthen academic skills.

Implementation of the Design. Teachers in Louisiana are participating in a statewide professional development initiative called In-Tech, to learn to integrate technology into instruction. As part of this training, teachers are encouraged to develop lesson plans that require students to locate, synthesize, and apply information from the Web. Through In-Tech, the 4th grade teachers in the WISH TV project are able to locate current and relevant materials on the Internet. However, teachers have not been integrating Web resources into instruction because so few students had access to the Internet at home. Although the classrooms are wired, each classroom only has four computers available. As a result, these fourth grade teachers were not incorporating the Internet into instruction regularly.

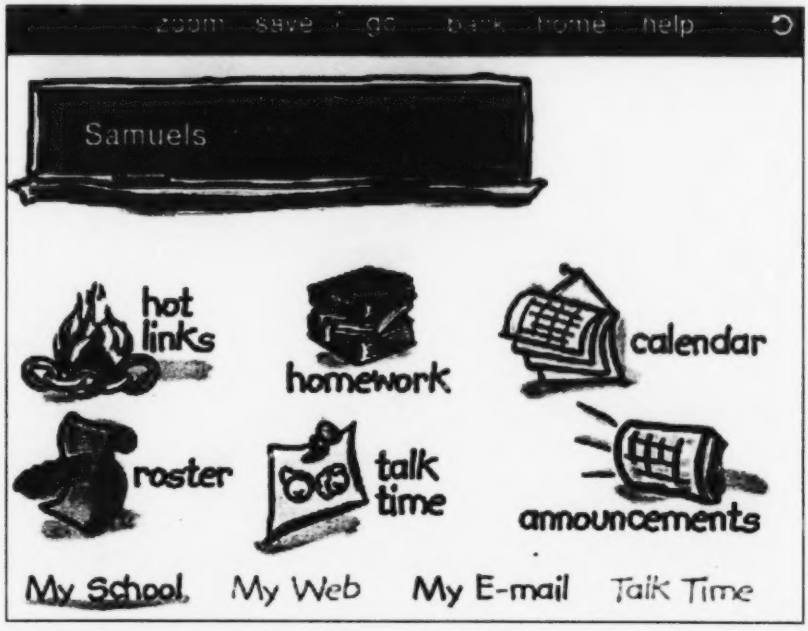
Teacher Training and Involvement. Belle Rose has four fourth grade teachers and each specializes in a core subject area. Students change classes for these subjects, so they have all four teachers each day. Miss Pizzalato and Miss Aubert are recent graduates of teacher education programs, and they are comfortable using computers. Miss Parker is a veteran teacher who is anxious to offer her students the very latest, and she is also computer literate. Ms. Helms, a teacher who came out of retirement to fill a vacancy this year, was leery of the technology. However, she was willing to learn and the other teachers and her students taught her how to use the Internet, post homework assignments, and send and respond to e-mail messages. She said, "Oh, I can do it now! I sit on the

edge of my bed with my keyboard and type away." As a result of this project, the teachers are planning together and sharing ideas for using WISH TV in their content areas.

Instructional Uses. The WISH TV interface is easy to use. Once teachers locate Web resources, they enter the URLs directly into the Hot Links section from home or school. Teachers and students are using WISH TV to find Web sites that contain pertinent information about the topics being studied. For example, students were studying about rocks in science class. During class, the teacher located and posted web sites for the students to use to complete their homework assignment. That night, several students searched for additional sites about the topic and shared these with their teacher and classmates the next day. The interface also includes a discussion board titled "Talk Time." Here, teachers post discussion questions, and students respond from home or school. Teachers also are posting homework, sending messages to parents to keep them abreast of their child's conduct and academic progress, and posting class announcements to inform parents of upcoming class projects and school events.

Home Connections. From home, the children and their parents access WISH TV interface through a wireless keyboard to check homework assignments, access accompanying hot links, or to complete homework and quizzes. WISH TV includes e-mail which enables students to send messages to classmates or to their teachers for further clarification on assignments. Parents are using e-mail to write to friends and relatives, teachers, and school administrators. In addition to these functions, parents can access the school calendar, check announcements and homework. Parents also can surf, explore job opportunities, and find products, services, and local community information.

Equal Access. In addition to providing equal access through WISHTV, access is uniform. In other words, the interface is seamless—it is the same at home as it is at school. This eliminates cumbersome technical barriers for children at home and consequently, WISH TV becomes another tool that students use routinely for instruction.



Methodology

Researchers at Louisiana State University have been studying the effects of WISH TV on fourth grade students' behavior, attitudes, and motivation to learn at Belle Rose Primary School in Belle Rose, Louisiana. Initial interviews focused on:

- How are teachers integrating WISH TV into their teaching practices?
- How are students and parents using WISH TV at home?
- What changes have teachers, parents and students noted since the program began?

Seventy-six fourth grade students attend Belle Rose Primary. Sixty-six are African-American and ten are white. Ninety-two percent of Belle Rose's students are eligible for a free or reduced lunch. Only four 4th grade students had access to the Internet before WISH TV was installed in their homes.

Data Collection and Analysis. Data were gathered through guided interviews with 15 students, their parents, the four 4th grade teachers, and the principal during February 2000. The interview questions for students focused on how they were using the Internet, the average amount of time they used the Internet per day and their general reactions to use. Their parents were asked to describe changes in their behavior in regard to Internet use, changes in their children's behavior, and the impact WISH TV was having on student achievement. Teachers were asked to describe changes in their teaching practices in regard to Internet use, changes in students academic progress, changes in students attitudes, motivation to learn, and classroom behavior in general. The principal was asked to describe her impression of WISH TV, the impact the project was having on the students in her school, and any changes she had noted in students' behaviors. Data were analyzed using the constant comparative method to determine emerging themes and patterns.

Discussion

This section presents emerging themes from interviews with parents, students, teachers, and the school's principal. These interviews were conducted after the service had in place in homes for two months.

Parents. Some parents were apprehensive about installing the Internet into their homes. They were concerned that a cost would be associated with it. They were also concerned that someone might try to harm their children via e-mail. At the Parent Orientation, school administrators, representatives from Charter Communications, and the ministers explained that Belle Rose Primary was piloting WISH TV and the service would be provided free of charge for one year. School administrators and the ministers also encouraged parents to monitor their children's Internet activities and urged all students to report strange e-mail messages to adults.

During the interviews, parents expressed delight with the service because it made communication with the school very easy and allowed them to be involved in their children's schoolwork in unobtrusive ways. For example, DonTracy's father said that every day after school his wife will ask DonTracy what he has for homework that night. Every day, the response is the same, "Nothing." DonTracy's father laughed as he explained:

> I go to WISH TV and look at the homework assignments. He's not getting away with anything anymore. I wish my older son's teacher was participating in this project. Actually, every parent needs this.

Many parents noted changes in their child's completion of homework assignments because students like using the Internet to complete assignments. Also, parents are aware of assignments now and are making sure their children completed them. Both parents and their children expected

higher grades because students were completing their schoolwork. Parents responded that their children also were using the Internet to search for additional information about school topics on the Web and were sharing this information with teachers and classmates. In general, parents noted that their children were excited and more interested in school because of WISH TV. In addition to completing assignments and searching for information, children are sending e-mail messages to each other, completing practice exercises for standardized tests, and playing games online. Parents estimated that children were using WISH TV between five and 16 hours per week.

Parents commented that their children were teaching them to use e-mail and the Internet and they are checking the weather online and searching the Web for information. Several parents expressed concern about what will happen to the service at the end of the year because their children are active users and have come to rely on the Internet for information and entertainment. Realizing that the fate of this pilot project is uncertain, some parents have begun to explore alternative ways to access the Internet so that their children can continue to be Web users.

Students. Changes in the students' behaviors were surprising to everyone, including the students themselves. As recommended by the Task Force, the service was installed in the students' homes, but to get a keyboard, their parents had to attend the orientation and sign an Acceptable Use Policy. About a week's time separated the installation and the Parents' Orientation. During that week, one fourth grade boy figured out how use the remote control to access a virtual keyboard on the TV screen. This allowed him to access the WISH TV service and send e-mail messages to his classmates. Word spread, and everyone was sending e-mail messages to each other before they had keyboards. Systems designers were astounded because the virtual keyboard function is very difficult to access or use.

Every student replied that they are using WISH TV to complete homework assignments. Students also acknowledged that their parents were helping them with assignments, and both fathers and mothers shared this responsibility. Students felt that they were completing more assignments now and they had access to more information. As a result, they are expecting higher grades. Chaquille said that he's doing his homework now because he can find the information he needs to do it.

Students were also excited about practicing the LEAP Test online. The students realize the significance of this test and felt good about being able to be proactive in their preparation for it. Several students commented that they felt more prepared to take the test and expected to score well.

Finally, students and their parents were happy to have Internet access in their homes. In the past, they had to leave their house to use the Internet either at the library (11 miles away) or at a relative's house. Tammy said, "I'm really glad that I don't have to leave my house to get the Internet anymore."

Teachers. Teachers were amazed at the students' reactions to WISH TV. Now, homework completion is 100% and students are submitting their work via e-mail. Ms. Pizzalato said that her day begins with children on the school grounds shouting, "Ms. Pizz! Did you get my homework?" In science, she routinely posts several Web sites to access as part of a homework assignment and remarked that every night students are searching for additional Web resources to share with her the next day. She also noted that students want to use WISH TV at school all the time. She commented, "Well, during recess time, the kids stay in to working on WISH TV. They all want to get on the keyboard. It has increased their self-esteem immensely."

Miss Aubert, the math teacher, has challenged her students by posting online quizzes. She instructed her students to log onto a certain site, complete the quiz, and e-mail it to her no later than 6:30 p.m. Sunday night. Every child met the deadline. Miss Parker commented, "I would like to do my test online too. I am still learning."

All four of the teachers commented that WISH TV took a lot of time. Miss Pizzalato found that she was spending more time. She said, "Yes, it takes longer. In order for me to find something I have to spend some time, but it is worth it."

Principal. The principal noted changes in student behavior and student self-esteem. She noted that "those boys," who were always in her office, were no longer being referred. She also noticed that students were excited about learning and said that she had received several nice e-mail messages from students. She looked forward to student performance on the LEAP test and predicted that the 4th graders would score well on the test this year.

Benefits

Although it is too early to report on the impact of WISH TV, trends are emerging, and it appears that residents are beginning to feel empowered by the Internet. Although that sounds trite, parents, teachers, and the school's principal report that students are becoming active learners as they collaborate with classmates, teachers and their parents on projects and assignments. For example, for social studies, students had to research famous African-Americans, and DonTracy chose Martin Luther King. His father commented:

> You know, I have seen the picture of Martin Luther King standing on that balcony many times, but I had not seen a picture of the whole hotel with the balcony. Now I know where Dr. King was standing when it happened. That's what the Internet brought to my house.

Students report that they are completing more homework assignments, probing for more detailed information, and contributing to their own learning by sharing information and Internet sites with their teachers and classmates. Parents are learning to use the Internet through their children. One boy commented, "I'm teaching my mom and dad how to do it (use the Internet). I know more about it that they do." Additionally, parents have a reason to use the Internet—to help their children succeed in school. In this community, everyone can contribute equally and feel successful.

Next Steps

The next steps are uncertain and the partners are not sure how long the service will continue to be offered. Many parents commented that they would be willing to pay for the service if the cost was not too high. If the service is not available, some parents indicated that they would look for alternative Internet services. All parents felt that the Internet was a valuable learning tool. They were pleased with the changes they noted in their children and were happy to have had the opportunity to participate in this pilot project.

Additional Research

The research team will continue to study the adoption of this innovation and compare student performance at this school with student performance at a school that closely matches this one. In addition, teachers and principals at other sites in other states will be interviewed to learn more about usage at those sites. The research team also will assist partners in finding grant money to continue this project and expand it to other grades and schools in this parish.

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